

UNITED STATES PATENT OFFICE.

JOSEPH ADAMS, OF FAIRHAVEN, VERMONT.

STONE-SAWING MACHINE.

Specification of Letters Patent No. 13,074, dated June 19, 1855.

To all whom it may concern:

Be it known that I, JOSEPH ADAMS, of Fairhaven, in the county of Rutland and State of Vermont, have invented certain
5 new and useful Improvements in Feeding Stone-Sawing Machines, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before
10 known and of the usual manner of making, modifying, and using the same.

My improvements consist in the peculiar mode of guiding the saw gate, and in the apparatus for feeding; in the latter great
15 difficulty has heretofore been found in practice properly to feed up the saws to the work, so as to keep them in constant and proper action; if they were let down with their whole weight, their motion would be
20 in a right line, and they at once would remove the sand and water between them and the stone coming down upon it, thus retarding the work; to obviate this, the gate has been suspended, as I have done, by chains
25 at the four corners, and either lowered by hand at intervals, or by a regular ratchet feed motion, as a saw mill. The course of the saw in these cases was the proper one; that is, it moved in the segment of a circle,
30 cutting at the center of its motion when it came down to the stone, and then rising at each termination of the stroke, to permit the sand to be washed in under it by the water ready for the next cut. Practice has
35 shown that lowering the saws by hand at intervals was not a perfect method, as a constant and equal cutting would not be kept up in that manner, and thus much time was lost by working at disadvantage,
40 and a constant feed is also imperfect from the constantly varying density of the material to be cut; hence it became a desideratum to make a feed that should be constant, and at the same time adapt itself to the
45 varying density and obstructions in the stone. This I have effected and applied to use, and find it to increase the work done in a very considerable ratio.

The construction of this part of my apparatus is as follows: The saw gate, or
50 frame (*a*) is suspended at its four corners by cords or chains (*b*) which pass up over pulleys (*c*) on axes at each end, and thence pass to a windlass in the center, like other
55 saws, similarly suspended; this windlass (*d*)

bears a wheel (*d'*) at one end, around which a cord (*e*) winds, one end of which is affixed to said wheel; thence this cord passes down to a windlass (*f*) placed in a convenient position below; upon this wind-
60 lass (*f*) there is a spur wheel (*g*) that gears into a pinion (*h*) on the shaft of which a crank key can be put to wind up by hand to raise the saws when the cutting is finished, or for other purpose; the crank is removed
65 when the apparatus is in operation. On the opposite end of the windlass (*f*) there is a ratchet wheel (*i*) that by a pawl (*k*) connects a loose pulley (*l*) on the axis of the windlass with it; one end of a cord (*m*) is
70 attached to this pulley, and winds around its periphery, and thence up over a pulley (*n*) above, by which a weight (*o*) attached to the other end of the cord is suspended, so as to nearly counterbalance the saw
75 frame; leaving however the frame a little the preponderance. Thus circumstanced the saw, when put in motion, strikes the stone, and is released by its segmental motion, at which time it again preponderates, and
80 comes back in the segment of a circle, with nearly its whole weight and momentum, where it again strikes and passes up after making its cut, and so on causing the counter weight to have a short vibratory
85 motion up and down as the saw strikes the stone and rebounds, gradually rising at intervals as the saws are depressed, and allowing them to cut equally, however varying the density of the material may be, and
90 with a rapidity in inverse proportion to the density. A careful investigation of these various forces, and their results, will show an action never before attained by the previous devices used.
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The counterbalance, it is obvious, should be varied in weight with the number of saws used in a gang. The mode of guiding the gate is as follows: I employ fender posts but one side only, as at (*p*); outside of
100 these parts are others (*p'*) parallel with and near to them; and between these a box (*q*) slides up and down in a right line; the saw gate is connected with these boxes by an iron guide rod (*r*), which slides through the
105 box, parallel to the frame, and with it in the line of its motion; each end of the rod (*r*) is attached to the frame by a portion of it, bent at right angles, or by arms extending out from the frame or gate; and a
110

perfect guide is thus produced. To prevent
this guide from being worn, clogged, or in-
jured by the sand and dirt, I cover over
the upper side with a metal cover (*s*) that
5 affords sufficient protection to the parts, and
moves with the gate, as clearly seen from
the drawing. The box can be made with on
aperture through it for the cap to run in, or
it may be open at the top, thus carrying the
10 guide out of the way of the dust and dirt.
In the working machine, the post (*x*) shown
in the drawing can be removed or placed at
any distance from the carriage as it forms
no part of the guide to the frame.

Having thus fully described my improved 15
stone sawing apparatus, what I claim is—

The application to the saw frame hang-
ing from cords, so as to move of necessity
in the arc of a circle, of the counterbalanc-
ing weight which at the same time permits 20
it to feed itself at all parts of its motion,
substantially as above described; and, com-
bined therewith, the guides constructed and
operating as herein specified.

JOSEPH ADAMS.

Witnesses:

J. BECKWITH WEST,
JOHN L. SMITH.